

Dual Use Packaging, Phase II

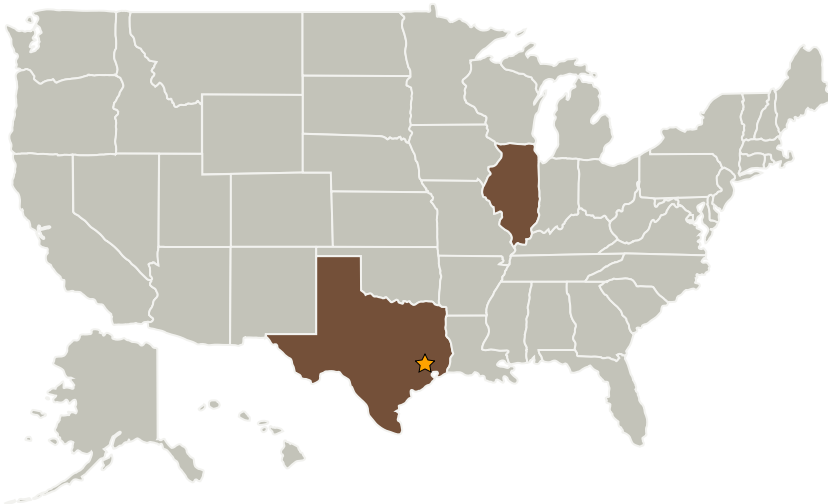
Completed Technology Project (2009 - 2011)



Project Introduction

NASA calculation that over a kg of packaging waste are generated per day for a 6 member crew. This represents over 1.5 metric tons of waste during a Mars mission. Currently, these wastes are considered a disposal burden. However, packaging can be designed to have valuable secondary uses which can lighten other payloads. These include: Light generation, electricity generation, storage structures, building materials, and raw material for hardware items. These benefits are not readily available in NASA's foil laminate structures used for packaging. Other materials more amenable to secondary uses lack the moisture and oxygen barrier essential to achieve NASA's shelf life targets for foods. This project controls moisture electro-thermally and oxygen electrochemically in an overwrap container. Once oxygen and moisture are managed in the overwrap, individual packaging can be made of virtually any material and the broad potential of secondary packaging becomes available. Phase I developed the tools and mathematical equations necessary to construct and model the performance of the overwrap system. Phase II research will combine these tools to create a working overwrap system capable of achieving NASA's shelf life requirements and providing valuable secondary uses to packaging wastes. As a result of this research, spent packaging will no longer be a waste burden, but will become a valuable mission asset.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Prove It, LLC	Supporting Organization	Industry Small Disadvantaged Business (SDB)	Orland Park, Illinois

Primary U.S. Work Locations

Illinois	Texas
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Project Transitions

**February 2009:** Project Start**March 2011:** Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX07 Exploration Destination Systems
 - └ TX07.2 Mission Infrastructure, Sustainability, and Supportability
 - └ TX07.2.1 Logistics Management